

INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 1996	Park: Shenandoah NP
Principal Investigator: Bruce Doddridge	Office Phone: (301) 405-7628 Email: bruce@atmos.umd.edu
Address: University of Maryland College Park, MD 20745 MD	Office Fax: (301) 314-9482
Additional investigators or key field assistants (first name, last name, office phone, office email):	
Name: Dr. Russell Dickerson Phone: n/a Email: n/a	
Permit#: SHEN1996ARVN	
Park-assigned Study Id. #: unknown	
Project Title: Enhanced Ozone Monitoring (N-204)	
Permit Start Date: Jan 01, 1998	Permit Expiration Date Jan 01, 1998
Study Start Date: Jan 01, 1996	Study End Date Jan 01, 1996
Study Status: Completed	
Activity Type: Research	
Subject/Discipline: Air Quality	
Objectives: <p>The major scientific objectives of this study continue to be as identified (in collaboration with the Project Technical Coordinator, Dr. John Ray of NPS/AQD) in the original proposal, and are listed as follows:;1. To characterize trends in levels of air pollution and of key ozone precursors observed at SNP.;2. To identify sources and source regions of ozone and key ozone precursors based on conserved tracers, meteorology, and transport models.;3. To determine the relative contributions to observed surface ozone levels within SNP of locally produced versus transported ozone, biogenic versus anthropogenic production, and NOx-limited versus VOC-limited production.;4. To observe trends in sulfur and nitrogen compounds that produce acidic deposition and to estimate relative contributions of the same to deposition over the region.</p>	
Findings and Status: <p>1. Monthly Statistical Data - The 1995 monthly CO data show no clear seasonal cycle, as did similar data representing the 1988-0 data set. Wintertime data show differences in median data, 1995 being 25-30 ppbv lower than our earlier study. The unexpected relative abundance of CO in summer, when CO is expected to reach an annual minimum observed in the 1989 study is reproduced during summer 1996, along with higher statistical variability of the 60-min data within each summer month. This interesting result supports our earlier contention that observed summertime CO levels at SNP are influenced strongly by some of the more reactive biogenic VOC's.;2. Ozone Interannual Variability - Data from SNP can provide important corroborative evidence to investigate the chemical climatology of the region. The year 1995 was characterized by the Baltimore, MD, ozone nonattainment area by a relatively high (14) number of NAAQS for ozone exceedances, many of these occurring in July. In 1996, fewer exceedances were observed. Data from SNP reflect these differences with observed summertime monthly 60-min ozone maxima significantly lower in 1996 than for 1995, particularly for July. ;3. Characterizing Photochemical Ozone Using O3/CO Ratio; Monthly observed median 60-min O3/CO data for SNP during 1995 and 1996 show behavior similar to other reported studies in North America, being highly correlated negative during winter (with minima in correlation coefficient and slope in November-December) and highly correlated positive (to new O3/CO=0.3, a value seen elsewhere and believed to indicate relatively recent in situ regional-scale ozone production) during summer, peaking (correlation coefficient and slope) in the months August-September.</p>	
For this study, were one or more specimens collected and removed from the park but not destroyed during analyses? No	

Funding provided this reporting year by NPS: 48000	Funding provided this reporting year by other sources: 100000
Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college	
Full name of college or university: University of Maryland	Annual funding provided by NPS to university or college this reporting year: 48000